REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 3 and 5-19 are presently pending in this application, Claims 2 and 4 having been canceled and Claims 1, 5 and 15-17 having been amended by the present amendment.

In the outstanding Office Action, Claims 1-6, 9, 10 and 12-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Horiuchi et al. (U.S. Publication 2004/0159121) in view of Mackie (U.S. Patent 1,024,641); and Claims 7-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Horiuchi et al. in view of Mackie and JP 06-241614 (hereinafter "JP '614").

Claims 1, 5 and 15-17 have been amended to clarify the subject matter recited therein. This amendment finds support in the specification, claims and/or drawings as originally filed, for example, Claims 2 and 4, and no new matter is believed to be added thereby. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work in a joint effort to derive mutually satisfactory claim language.

Briefly recapitulating, Claim 1 of the present invention is directed to a heat exchanger and recites: "a refrigerant inlet header; a refrigerant outlet header arranged side by side with the refrigerant inlet header in a front-rear direction at an upper end of the heat exchanger; and a refrigerant circulating passage which holds the two headers in communication therethrough, wherein the inlet header has a refrigerant inlet at one end thereof, the outlet header has a refrigerant outlet at one end thereof alongside the inlet, a refrigerant is flowable into the inlet header from the inlet and thereafter returnable to the outlet header through the circulating passage so as to be sent out from the heat exchanger through the outlet, the refrigerant inlet is provided in a closing member closing an opening of the inlet header at said end thereof, the closing member has a lower edge defining the inlet and provided with a guide slanting

upward inwardly of the inlet header, and the guide is in the form of a segment of a sphere and has a projecting end face positioned on a slanting plane inclined with respect to a vertical inner surface of the closing member."

That is, the guide guides the refrigerant of vapor-liquid mixture phase flowing into the inlet header to flow in the opposite direction of the heat exchange tube, allowing the refrigerant to flow through the inlet header easily to locations remote from the inlet. Thus, the refrigerant flows through all the heat exchange tubes joined to the inlet header in uniform quantities and also through all the heat exchange joined to the outlet header in uniform quantities. Accordingly, the amount of refrigerant contributing to heat exchange is made uniform in the heat exchange core of the refrigerant circulating passage longitudinally of the inlet header, and the air passing through the core will have a uniform temperature, thereby improving heat exchange performance even when the refrigerant has a low flow rate.

It is respectfully submitted that none of Horiuchi et al., Mackie and JP '614 teaches or suggests "a refrigerant inlet header ..., wherein the inlet header has a refrigerant inlet at one end thereof ..., the refrigerant inlet is provided in a closing member closing an opening of the inlet header at said end thereof, the closing member has a lower edge defining the inlet and provided with a guide slanting upward inwardly of the inlet header, and the guide is in the form of a segment of a sphere and has a projecting end face positioned on a slanting plane inclined with respect to a vertical inner surface of the closing member" as recited in amended Claim 1.

More specifically, Mackie shows a refrigerant inlet header arranged at the lower end side of a heat exchange tube, and the refrigerant inlet header is connected to the lower end portion of the heat exchange tube. According to Mackie, a refrigerant inlet is positioned lower than the lower end of the heat exchange tube connected to the refrigerant inlet header. Consequently, in Mackie, the guide slants upward inwardly of the refrigerant inlet header but

inwardly toward the heat exchange tube side, thus guiding fluid to the heat exchange tube side. As such, if the guide shown in Mackie is used in the heat exchanger of Horiuchi et al., it results in a guide slanting inwardly of the refrigerant inlet header toward the heat exchange tube connected to the refrigerant inlet header. Therefore, the structure recited in Claim 1 is clearly distinguishable from Horiuchi et al., Mackie and JP '614.

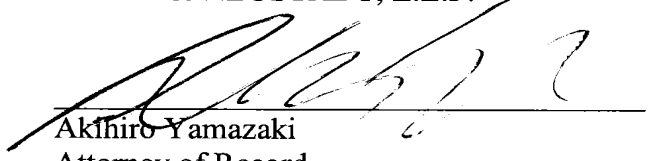
Because none of Horiuchi et al., Mackie and JP '614 discloses the refrigerant inlet header as recited in Claim 1, even the combined teachings of these cited references would not in any way render the heat exchanger of Claim 1 obvious.

For the foregoing reasons, Claim 1 is believed to be allowable. Furthermore, since Claims 3 and 5-19 depend directly or indirectly from Claim 1, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 3 and 5-19 are believed to be allowable as well.

In view of the amendments and discussions presented above, Applicant respectfully submits that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Akihiro Yamazaki
Attorney of Record
Registration No. 46,155

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 07/09)